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Michigan Educational Assessment Program

**Mathematics Grade 5
Scoring Guide for
Released Item #71
Table of Worker's Hours and Pay
Fall 2005**

MICHIGAN Department of Education

MATHEMATICS – GRADE 5: PART 4   **FALL 2005**

(4 points)

Five people work together at a local factory.

> Roger works for 5 hours and earns $40.
>
> Marti works for 7 hours and earns $56.
>
> Bill works for 4 hours and earns $32.
>
> Leroy works for 8 hours and earns $64.
>
> Paula works for 6 hours and earns $48.

- Make a two-column table that lists the workers' hours and pay in order from *greatest to least*.

- Each worker earns the same amount of money per hour. Explain how you could use the table to find this amount.

> **ANSWER THIS ITEM IN YOUR ANSWER FOLDER.**
>
> **SHOW ALL YOUR WORK IN YOUR ANSWER FOLDER.**

Mathematics Rubric for Table of Worker's Hours and Pay

- **1 point** for a two-column table with appropriate column headings.

- **1 point** for all hours and pay listed in correct order on the table and appropriate location of dollar signs.

- **2 points** for a reasonable explanation of how the rate was determined.

Examples:
   The table shows the pattern in the workers' hours and pay. As hours go down by 1, pay goes down by 8. Continue this pattern to fill in the next three rows of the table.

   Divide the amount of pay by the number of hours worked. The amounts of pay are multiples of 8.

A **4-point** response includes all four points.

A **3-point** response includes three points.

A **2-point** response includes two points.

A **1-point** response includes one point.

A **0-point** response shows insufficient understanding of the item being tested.

Condition codes for unratable papers (zeroes):
A – Off Topic
B – Written in a Language other than English or Illegible
C – Blank or Refusal to Respond

Sample Paper 1 – Score Point 4

4 points

A1

(4)

Hours	Pay
8	$64
7	$56
6	$48
5	$40
4	32

Each worker gets the same amount of money for each hour. I know this because I looked at my graph and saw a pattern. The pattern was for each hour coming down. The price went down 8 dollars for each hour.

**Sample Paper 1
Score Point 4**

The response demonstrates complete understanding of the task by providing a correct and complete table and a reasonable explanation of how to determine the pay rate.
- The response has a two-column table with appropriate column headings *(hours, pay).* **(1 point)**
- The response has all the hours and pay listed from high to low on the table, and the table has dollar signs correctly labeled before the pay amounts. **(1 point)**
- The response has a reasonable explanation of how to determine the pay rate *(The price went down 8 dollars for each hour).* **(2 points)**
The response earns **4 points**.

Sample Paper 2 – Score Point 4

1. Leroy's 8 hours of work earn him $ 64
2. Marti works for 7 hours and ears $ 56
3. Paula gets $ 48 for 6 hours of work
4. Roger works for 5 hours and earns $40
5. Bill gets $ 32 for 4 hours of work.

Name	hours	$
Leroy	8	$ 64
Marti	7	$ 56
Paula	6	$ 48
Roger	5	$ 40
Bill	4	$ 32

You add up all the hours and all the money and the do an hours 240 ÷ 30 = 8. You would get $ 8

Sample Paper 2
Score Point 4

The response demonstrates complete understanding of the task by providing a correct and complete table and a reasonable explanation of how to determine the pay rate.

- The response has a two-column table with appropriate column headings *(hours, $)*. (**1 point)** Note that a dollar sign is sufficient as a column heading.
- The response has all the hours and pay listed from high to low on the table, and the table has dollar signs correctly labeled before the pay amounts. **(1 point)**
- The response has a reasonable explanation of how to determine the pay rate *(You add up all the hours and all the money and do 240 ÷ 30 = 8. You would get $8 an hours). (2 points)** Note that reporting the rate as $8 an hour with supporting work is sufficient to earn full credit.

The response earns **4 points**.

Sample Paper 3 – Score Point 3

Leroy $64   8 hours
Macti $56   7 hours
Paula $48   6 hours
Roger $40   5 hours
Bill $32   4 hours

Look at each person's hours compared to dollars. Then you see what numer each of the numbers is divisible by (8). Your answer is the that number.

Sample Paper 3
Score Point 3

The response demonstrates understanding of the task by providing a table and a reasonable explanation of how to determine the pay rate.
- The response has a two-column table without any column headings. **(0 points)**
- The response has all the hours and pay listed from high to low on the table, and the table has dollar signs correctly labeled before the pay amounts. **(1 point)**
- The response has a reasonable explanation of how to determine the pay rate *(Look at each person's hours compared to dollars. Then you see what number each of the numbers is divisible by (8). Your answer is that number).* **(2 points)**

The response earns **3 points**.

Sample Paper 4 – Score Point 3

39

	Hours worked	amount of money earned
Bill	4 hrs.	$32
Roger	5 hrs.	$40
Paula	6 hrs.	$48
Marti	7 hrs	$56
Leroy	8 hrs.	$64

I could use this table to find out how much money each worker earns per hour by looking at the table and in the amount of money earned column I see that each number is increasing by 8. That means each worker earns 8 dollars an hour.

Sample Paper 4
Score Point 3

The response demonstrates understanding of the task by providing a table and a reasonable explanation of how to determine the pay rate.

- The response has a two-column table with appropriate column headings *(hours, amount of money earned).* **(1 point)**
- The response has the hours and pay listed incorrectly from low to high on the table. (**0 points)**
- The response has a reasonable explanation of how to determine the pay rate *(I see that each number is increasing by 8…. That means each worker earns 8 dollars an hour).* **(2 points)**

The response earns **3 points**.

Sample Paper 5 – Score Point 3

4 points   ③

Workers' hours and How much they get
Payed least to greatest

Hours	Money
8 hours	$64.00
7 hours	$56.00
6 hours	$48.00
5 hours	$40.00
4 hours	$32.00

I Could find this amount by dividing
by 8. For example if Someone worked
9 hours they would get $72.00.

the example
↓
$9 \div 8 = 72$

Answer $72.00

Sample Paper 5
Score Point 3

The response demonstrates understanding of the task by providing a correct and complete
table and a partial explanation of how to determine the pay rate.
- The response has a two-column table with appropriate column headings *(hours, money)*. **(1 point)**
- The response has all the hours and pay listed from high to low on the table, and the table has dollar signs correctly labeled before the pay amounts. **(1 point)**
- The response has a partially correct explanation of how to determine the pay rate. *"I could find this amount by dividing by 8"* is correct but the example *"9 ÷ 8 = 72"* is incorrect. **(1 point)**

The response earns **3 points**.

Sample Paper 6 – Score Point 3

4 points

H6
③

Workers	hours	pay
Leroy	8	$64
Marti	7	$56
Paula	6	$48
Roger	5	$40
Bill	4	$32

You can use this table to figure out the amout by.... Take the hours number and multiply, divide, add, or subtract it by another number and see if it will equale the pay. The answer for this is everyone gets $8 dollars a hour.

Sample Paper 6
Score Point 3

The response demonstrates understanding of the task by providing a correct and complete table and a partial explanation of how to determine the pay rate.
- The response has a two-column table with appropriate column headings *(hours, pay).* **(1 point)**
- The response has all the hours and pay listed from high to low on the table, and the table has dollar signs correctly labeled before the pay amounts. **(1 point)**
- The response earns partial credit for determining the pay rate. *"Take the hours number and multiply, divide, add, or subtract it by another number and see if it will equale the pay"* is incorrect. To determine the pay rate, the pay should be divided by the hours. *"The answer for this is everyone gets $8 dollars a hour"* is the correct pay rate. **(1 point)** Note that reporting the rate as $8 an hour without supporting work is sufficient to earn partial credit.
The response earns **3 points**.

Sample Paper 7 – Score Point 2

4 points

hours	Pay
8	64$
7	56$
6	48$
5	40$
4	32$

I could divide any of the payment numbers by 8.

A7

②

Sample Paper 7
Score Point 2

The response demonstrates partial understanding of the task by providing a table and a partial explanation of how to determine the pay rate.

- The response has a two-column table with appropriate column headings *(hours, pay).* **(1 point)**
- The response has all the hours and pay listed from high to low on the table, but the table has dollar signs incorrectly labeled after the pay amounts. **(0 points)**
- The response has a partially correct but incomplete explanation of how to determine the pay rate *(I could divide any of the payment numbers by 8).* **(1 point)** An example of a complete statement is "I could divide any of the payment numbers by 8 so the rate of pay must be $8/hour."

The response earns **2 points**.

Sample Paper 8 – Score Point 2

Pay	hours
$64	8
$56	7
$48	6
$40	5
$32	4

The people work more hours but make the same amount of money a hour. So you could just follow the hours on the chart.

Sample Paper 8
Score Point 2

The response demonstrates partial understanding of the task by providing a correct and complete table.
- The response has a two-column table with appropriate column headings *(pay, hours)*. **(1 point)**
- The response has all the hours and pay listed from high to low on the table, and the table has dollar signs correctly labeled before the pay amounts. **(1 point)**
- The response has a vague and incomplete explanation of how to determine the pay rate *(The people work more hours but make the same amount of money a hour so you could just follow the hours on the chart).* **(0 points)**
The response earns **2 points**.

Sample Paper 9 – Score Point 2

4 points

Bill	4 hrs.	$32
Roger	5 hrs.	$40
Paula	6 hrs.	$48
Marti	7 hrs.	$56
Leroy	8 hrs.	$64

A9
②

The amount of money that each worker works are all divisible by 8. You just divide the number of hours they work into the amount.

Sample Paper 9
Score Point 2

The response demonstrates partial understanding of the task by providing a reasonable explanation of how to determine the pay rate.

- The response has a two-column table without any column headings. **(0 points)**
- The response has the hours and pay listed incorrectly from low to high on the table. **(0 points)**
- The response has a reasonable explanation of how to determine the pay rate *(You just divide the number of hours they work into the amount).* **(2 points)** Note that it is unnecessary to reference "8" at all, as this part alone is sufficient to earn full credit.

The response earns **2 points**.

Sample Paper 10 – Score Point 2

4 points

A10
②

Leroy $64
Marti $56
Paul $48
Roge/ $40
Bill $32

5 × ⑧ = $40

everyone makes
$8 peur hour

Sample Paper 10
Score Point 2

The response demonstrates partial understanding of the task by providing a reasonable explanation of how to determine the pay rate.
- The response has a one-column table without any column headings. **(0 points)**
- The response has the pay listed only. **(0 points)**
- The response has a reasonable explanation (by example) of how to determine the pay rate *(5 x 8 = $40, every one makes $8 per hour).* **(2 points)** Note that supporting work (using the hours and pay of only one of the workers) is sufficient.
The response earns **2 points**.

4 points

All
①

Workers	Hours & Pay
Roger	5 $40
Marti	7 $56
Bill	4 $32
Leroy	8 $64
Paula	6 $48

subtract all of their hours from each other and then you get your answer.

Sample Paper 11
Score Point 1

The response demonstrates some understanding of the task by providing a partially correct table.

- The response has a two-column table with appropriate column headings *(hours, pay)*. **(1 point)**
- The response has the hours and pay listed out of order on the table. **(0 points)**
- The response has an incorrect explanation of how to determine the pay rate *(Subtract all of their hours from each other and then you get your answer)*. **(0 points)** This response needs to be more specific about what hours are being subtracted (by words or example) to receive any credit.

The response earns **1 point**.

Sample Paper 12 – Score Point 1

4 points

①

1. Leroy $ 64.00
2. Marti $ 56.00
3. Paula $ 48.00
4. Roger $ 40.00
5. Bill $ 32.00

8 hours
7 hours
6 hours
5 hours
4 hours

Well you can use these tables to help you find the amount of money he or she earns when they work 4, or 5, or 6, or 7, or even 8 hours to make money for their familys.
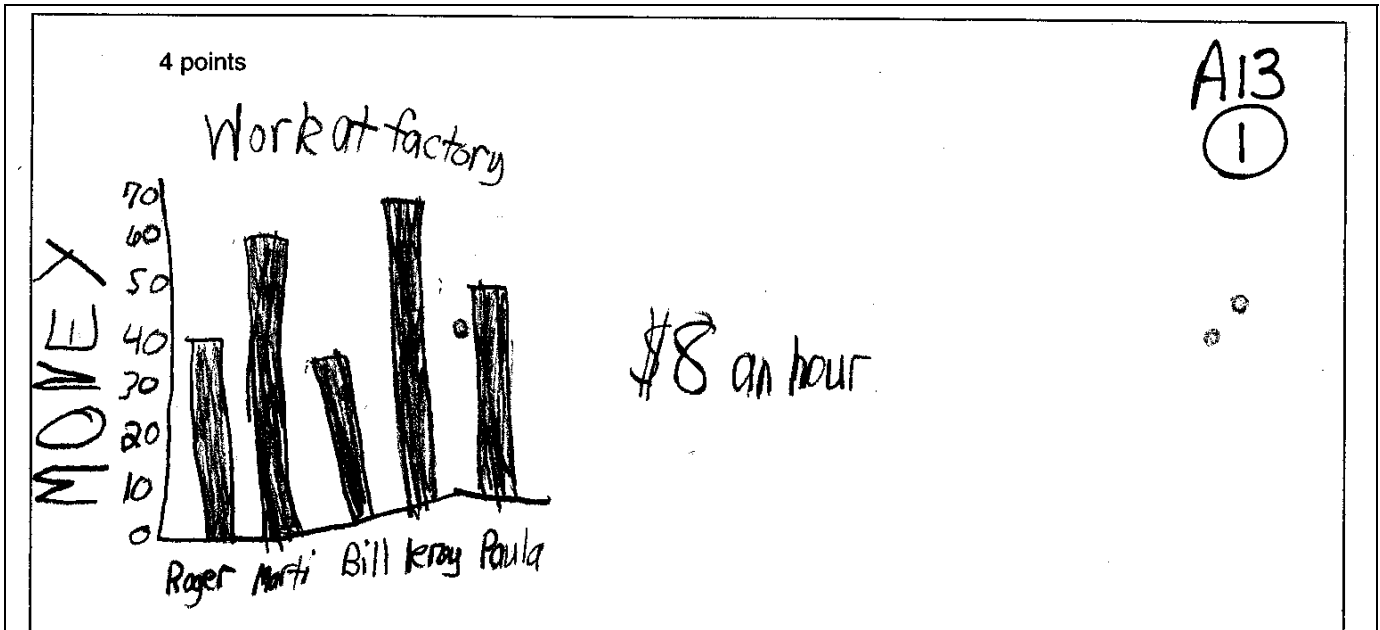
Sample Paper 12
Score Point 1

The response demonstrates some understanding of the task by providing a partially correct table.

- The response has a two-column table without any column headings. **(0 points)**
- The response has all the hours and pay listed from high to low on the table, and the table has dollar signs correctly labeled before the pay amounts. **(1 point)**
- The response has a vague and incomplete explanation of how to determine the pay rate *(you can use these tables to help you find the amount of money he or she earns when they work 4, or 5, or 6, or 7, or even 8 hours).* **(0 points)**

The response earns **1 point**.

Sample Paper 13 – Score Point 1

4 points

Work at factory

MONEY

70
60
50
40
30
20
10
0

Roger Marti Bill kroy Paula

$8 an hour

A13
①

Sample Paper 13
Score Point 1

The response demonstrates some understanding of the task by providing a partial explanation of how to determine the pay rate.
- The response incorrectly displays the data with a bar graph, not a table. **(0 points)**
- The response does not have a table that lists hours and pay. **(0 points)**
- The response earns partial credit for determining the pay rate *($8 an hour).* **(1 point)**
The response earns **1 point**.

Sample Paper 14 – Score Point 0

Name

Leroy	Marti	Paula	Roger	Bill
Hours				
8	7	6	5	4
Pay				
$64	$56	$48	$40	$32

How I could use the use the table to find out the money they all get equally is that I could add $8 to Marti's pay, add $16 to Paula's pay, add $24 to Roger's pay, and add $32 to Bill's pay.

Sample Paper 14
Score Point 0

The response demonstrates insufficient understanding of the task.
- The response incorrectly displays the data table with rows, not columns. **(0 points)**
- The response incorrectly displays the data table. **(0 points)** Note that without a correct (vertical) table with columns, credit cannot be earned even if the data is listed from high to low.
- The response has a vague and incorrect explanation of how to determine the pay rate *(I could use the table to find out the money they all get equally is that I could add $8 to Marti's pay, add $16 to Paula's pay, add $24 to Roger's pay, and add $32 to Bill's pay).* **(0 points)**
The response earns **0 points**.

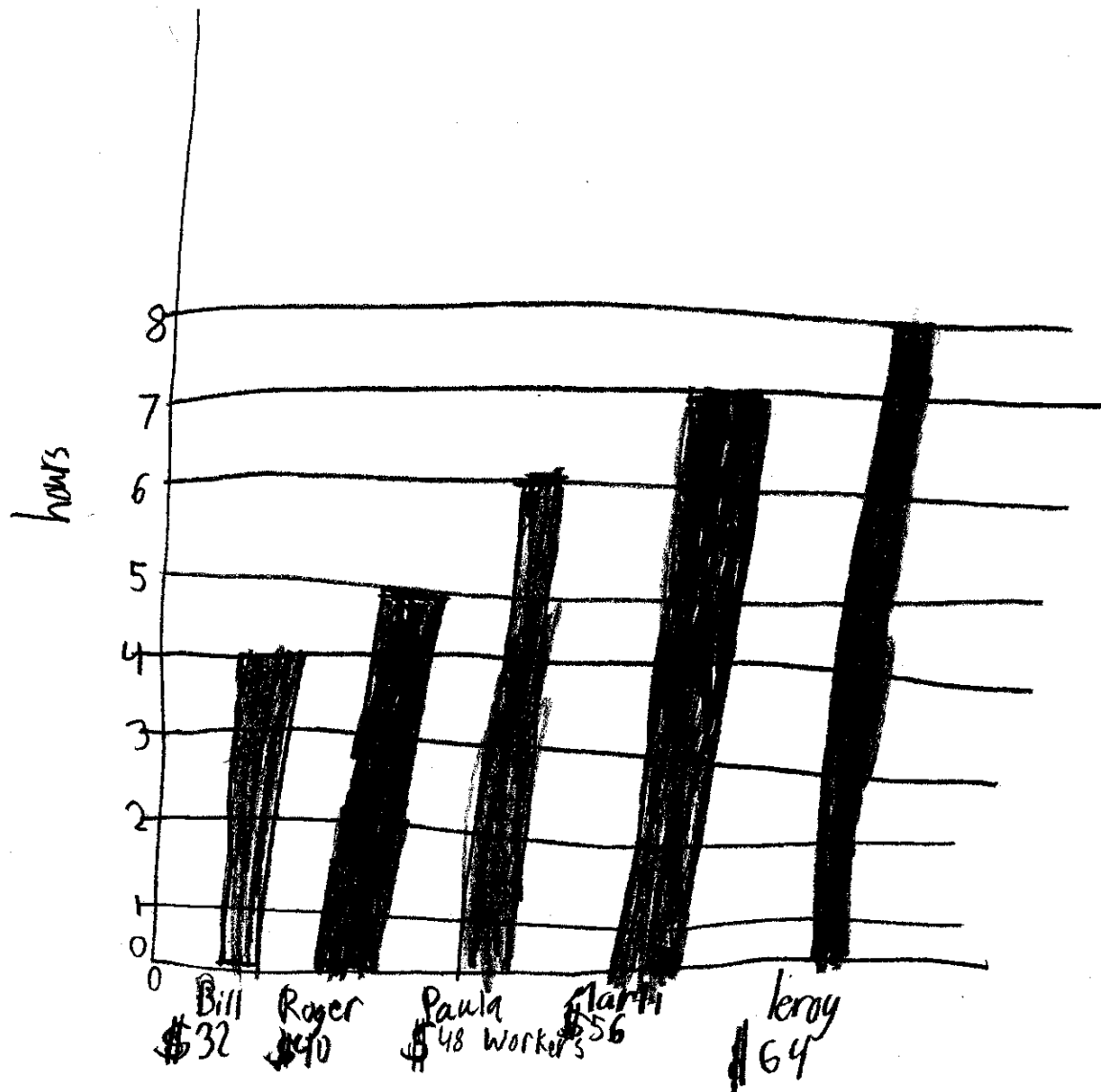## Sample Paper 15 – Score Point 0

Sample Paper 15
Score Point 0

The response demonstrates insufficient understanding of the task.
- The response has a two-column table without any column headings. **(0 points)**
- The response has the hours and pay listed incorrectly from low to high on the table. **(0 points)**
- The response has an incorrect explanation of how to determine the pay rate *(Every one needs to get payed the same if they do the same hours).* **(0 points)**
The response earns **0 points**.

Sample Paper 16 – Score Point 0

Sample Paper 16
Score Point 0

The response demonstrates insufficient understanding of the task.
- The response incorrectly displays the data with a bar graph and does not have a table. **(0 points)**
- The response does not have a table. **(0 points)**
- The response has no explanation of how to determine the pay rate. **(0 points)**
The response earns **0 points**.

Sample Paper 17 – Score Point 0

4 points

Leroy's 8 hours of work earn him $64.

Marti works for 7 hours and earns $56.

Paula gets $48 for 6 hours.

Roger works for 5 hours and earns $40.

Bill gets paid $32 for 4 hours of work

I think each worker earns the same amont of money because they work very hard.

Sample Paper 17
Score Point 0

The response demonstrates insufficient understanding of the task.

- The response does not have a two-column table. **(0 points)**
- The response does not have a table that lists hours and pay. **(0 points)** Note that without a correct table with columns, credit cannot be earned even if the data is listed from high to low.
- The response has no explanation of how to determine the pay rate *(I think each worker earns the same amount of money because they work very hard)*. **(0 points)**

The response earns **0 points**.